

The Cognitive and Opinion-forming Role of Geocomposition as an Independent Semiotic Existence

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Abstract. Geocomposition is a specific semiotic *universum* (semiosis), with a very wide cognitive and utilitarian meaning. It is identified with graphic, sound and text, as well as touch, smell and taste compositions, which relate to the Earth surface and the whole geosphere. The concept of geocomposition covers various elements, divided into: types (anthropogenic i.e. artefacts and natural, the so-called geofacts); varieties (real, virtual, augmented); and categories (classical, *curiosum*, metaphoric). In this concept, apart from aesthetic and philosophical issues, there are practical aspects for drafting, implementing and making available such communiqué (sign), owing to which we may obtain reliable knowledge.

Keywords: geocomposition, semiosis, augmented reality

1. Introduction

Geocomposition as a relatively broad term is identified with graphic, sound and text works, related to the Earth surface and the entire geosphere. In accordance with the author's definition, the notion should be understood as: "each technical and aesthetic composition selected purposely and properly put into order of graphic, sound, text, tactile, taste and smell elements with their: 1. types (anthropogenic/artefacts, natural/geofacts); 2. varieties (real, virtual, augmented); 3. categories (classical, *curiosium*, metaphoric), that are independent changeable components or cooperate with each other in various configurations, with possible functions of interactive modifying the content and informing on things, processes and phenomena (structures) of social and natural character, occurring in the geosphere".

2. Geocomposition as a specific variety of semiosis

At the current stage of development related to digital communication technologies, the geocomposition, as typical in geoinformation semiotic *universe*, makes up a specific variety of semiosis. This can be seen in particular in Earth (natural) sciences, because here every map or atlas is at the same time a geocomposition to widen the cognitive horizon much more than other types of information sources. In the geocomposition concept, seen as semiosis, apart from aesthetic and philosophical issues, there are also hidden purely practical aspects to designing, realisation and making available such a communication (sign), owing to which we may gain new information, up to now unknown. At the same time, it is worthwhile to mention that according to Charles Sanders Peirce, the author of a philosophical trend referred to as pragmatism and modern semiology, the entire knowledge of ours is also a sign, as our thinking is carried out in signs and through their intermediary (Bense 1980).

Knowledge defined in multiple manners is: *“a totality of reliable information about reality, together with the ability to use it”* (<http://pl.wikipedia.org/wiki/Wiedza>).

Knowledge can also be defined as: **(1)** a group of elements formed by practice in a given space in which given subjects and objects made alive remain in close discourse relations and at the same time as: **(2)** a field of co-existence and dependence of utterances in which new applicable notions and terms appear by which they are better consolidated (Foucault 2002).

Citing the above-mentioned Max Bense, one should note that semiosis means any sign process which, at the same time, is a historically and culturally changeable repertoire understood as a collection of signs, being at the disposal of receivers in a given field. Therefore, relating directly to geocomposition as a sign in itself and, at the same time, communiqué in the form of a collection of signs (characteristic both of cartographic as well as geomatic products), we should emphasize the fact that this communiqué is a natural product and a result that came into being in consequence of historical and cultural evolution, as well as transformations, taking place amongst various scholarly disciplines, branches of arts, media and recently, first of all, multimedia. The multimedia have it that the repertoire of the contemporary geocompositions is de facto unlimited as to its resources.

There is a variety of motives to use the media and trends of their functioning, arising from the dynamic technology of mass communication. These tendencies are manifested, among others, by the influence of the communiqué on human senses, preferring certain contents and forms of this communiqué, the context of its use and also the relations between the speaker

and the receiver (McQuail 2008). The information presentation (in particular in the digital form) additionally defining the medium, becomes such a medium in itself, since an extremely wide audience of the contemporary communication (the cyberspace) has it that the essence of the presentation loses currently its importance because of the quality of the medium itself (Castells 2007, Lash & Lury 2011). This is confirmed by interdisciplinary scholarly research in the field of mass communication sociology (psychology, language studies, political studies, sociology, history, law, economics, aesthetics) at whose genetic basis, there are, among others, the knowledge of press, radio and television (Goban-Klas 2006).

With reference to geocomposition as semiosis, for which a multi-variant process of using signs is improved by the technological progress, it turns out to be necessary to treat it as a symbol and sign at the same time, although these notions are not synonyms (O'Connell & Airey 2007, Kim & Hodgson & Lockley 2009). However, it is natural that symbols are: on the one hand, for instance, conventional signs (mathematical, traffic signs, digits and letters of various alphabets, national flags, etc.), on the other hand, they are similarly sounding objects, notions or ideas (associative, having a mutual "rhythm", etc.) with other units, ideas or concepts (Kopaliński 1990). Also in this very context, the analysis of the cognitive and opinion-forming role of geocomposition as an ontological sign and symbol, too, is an analysis of a long list of details and procedures which shape it, among others, to discover its true aesthetical and pragmatic function, confirmed in the literature (Gotlib 2011b).

Although the quality of tools applied while drawing up contemporary multimedia presentations (of which also maps), rather fosters the final image understood as a totality received not only visually, however, it is difficult to remain indifferent when faced with examples excessively differing by methods from the universally recognised canons, schema and principles. Drawing up and development of a geocomposition theory is a need to turn our attention to the changing approaches to editing multimedia presentations, arising from dynamically changing quality of more and more sophisticated, generally available tools in the form of netbooks, i-pads, smartphones, etc. These changes consist, among others, in supplementing the graphics of maps by means of videophonic effects. The information presentations created in this way, multiple the aesthetic effects, have an inspiring impact on the receiver and are defined in the literature in a differentiated way: as geopresentation and hyperpresentation (Berlant 1993), informative media (Robinson 1995), hypermaps (Kraak & Ormeling 1998) graphic derivative map presentations (Kowanda & Helbig 1999) and other similar articulations.

In accordance with the developed theory (Kozieł 2001, 2003, 2005, 2006), geocompositions may be drafted and drawn up with the application of the digital, analogue or mixed technology, whereby digital geocompositions may be fully subjected to interactive modelling, the mixed ones, digital-analogue only partially, however, the analogue examples are on principle deprived of such possibilities. Then, if in the above definition of geocomposition we speak about “(...) *possible functions of interactive content modification*”, this means that the manner of their drawing up requires a skilful look at the whole variation of possible options (occurring not only in the digital form), which are not so easy to be modelled. However, independently of this, traditional press information, together with simple graphic compositions, still plays a very important role.

A difficult to estimate number of media (daily press, the Internet) map-related cartographic material and enormous quantity of information related thereto, is a specific trend which deserves more attention. This is even justified more as this information, appearing in everyday multimedia is made available to vast groups of receivers. A traditional map, in the institutional-publishing meaning, generally does not occur, as examples whose connections to cartography may only be guessed prevail here. These illustrations, most frequently tightly related to the text, have a crucial impact on the understanding of the presentation, and when appearing also as independent and individual metaphors, they are kept in the memories of receivers very well. In connection with the earlier erudition and other elements in form of life experience of the receivers, they give rise to new qualitative associations and imaginings and by the same, they guarantee an increment of knowledge. Facilitating a full understanding of the communiqué, they also stimulate impulses usually leading to completely innovative solutions. It turns out that human creativity, originating most frequently from learned skills and individual predispositions, is, first of all, a component of imaginings and a skilful filtering of contents contained in communiqués very strongly differentiated by subject. However, for many so called statistical receivers, such a type of expression becomes an example of true and most valuable source of information and, at the same time, a masterpiece of art.

It is worth remembering, in particular, facing the available computer and network hardware, and also services and databases, when we are flooded with an enormous quantity of various, more or less metaphoric but sometimes very universal, infographics. A great feature of geocomposition (quite frequently a very strong metaphor), is the fact that it allows to activate the imagination, as it requires a certain intellectual effort from the receivers who sometimes, after a moment, may notice a characteristic outline or identify uniformly the hidden meaning to be associated and this means that they are able to understand the merits of the communiqué.

3. Universal nature of geocomposition

If the starting point is that the geocompositions in metaphoric forms, similarly to the so called lively metaphors tell us something new about the reality because it is only owing to metaphoric distortion that the expressions obtain their sense (Ricoeur 1989), the larger role should be ascribed to them, both from the cognitive and opinion-forming point of view. The reference to the artistic and metaphoric form in multimedia presentations, confirms the shortage of sufficiently worked-out methodology related to picturing processes and structures, occurring in the real space, surrounding us and the more and more realistic virtual space. That is why, currently, not only do we speak of virtual reality but more so about the real virtuality or even the augmented reality.

The universal nature of such geocompositions is manifested in the graphics of this type, that may be adapted to picture problems from the field of economics, politics, business, sports, science, culture and even ideas. It is obvious that generating, or rather neuro-imaging of thoughts, including emotional states of a single human being, as well as of the whole social groups, is a much more complicated sphere of knowledge related to neurocognitive sciences. This does not mean that elements and attainments taken from the borders of cartography and neurology cannot be applied in the developed theory of geocomposition. This is the more so justified that mapping ideas, emotions and feelings with the help of well worked out cartographic methods is very difficult, or even impossible. In this context, is manifested the role and meaning of the above-mentioned editors-info-graphics designers. They are not burdened with mannerisms, arising from specific methods. Their creativity, confirmed by their great artistic craftsmanship prevails over the learnt schematisms, that are supported at most by the standard functions of computer software.

Therefore, it is worth remembering that apart from the potential to use ready-made or even imposed media offer (or application), there is a possibility to create our own and original examples to prove individual tastes and visions, arising from specific needs. Particular examples of such maps of thoughts and, at the same time, geocompositions, may be those which show the relations, occurring in the geographic space, in the defined time, on the ground of specific problems.

When we care about the implementation and promotion of good cartographic templates, which usually is the case, it becomes important to work out the supporting creators (assistant cartographers) which support: (1) controlling the scope of geocomposition content (editing) and (2) effective use of media services (within the interpretation) (Gotlib 2011_a).

Erroneous interpretations which are the “work” of a human being or automated systems, relate to many systems of human activity, not necessarily connected to the map and widely understood geoinformation, but their reference here is not the most important matter. The profits, arising from the geomatics being developed and the so-called geomatic methods to support research (Kozieł 1997) taken into account, on the other hand, it is obvious that interpretation and analytical skills, different for different receivers, require such presentation templates which do not cause confusion nor misinformation. A natural manifestation of the substantial correctness of a cartographic or geomatic presentation, independently from the fact whether it is a simplified cartoon or a much more sophisticated Internet construction (geoportal), or a high level of the final image as an entirety shall be closely set out in editorial assumptions, with the care for perfectly precise workshop details in individual layers and their fragments.

Working out a theory of geocomposition and its re-defining is currently an urgent need because of:

1. a changing attitude towards multimedia presentations editing, arising from a dynamically changing quality of more and more sophisticated universally available tools in the form of netbooks, i-pads, smartphones, etc., when nearly everybody may “google” a map;
2. a need to widen the collection of graphic, text and sound elements (sound geography) with touch, taste (taste geography) and smell (smell geography);
3. a need to classify geocomposition into various types (anthropogenic i.e. artefacts and natural, the so-called geofacts), varieties (real, virtual, augmented) and categories (classical, *curiosum* and metaphoric), arising therefrom.

Assuming some notion criteria, such as:

- a) format (analogue, digital, mixed);
- b) version (static, dynamic);
- c) form (graphic, text, sound);

we shall remember about the whole series of additional criteria, from the point of view of which it is possible to separate such or other elements of geocomposition. They are:

- area/sphere (local, regional, continental, global, mixed, unidentified);
- scale (large, medium, small, mixed);
- designation (useful, decorative, therapeutic, unidentified);
- content (natural, ecological, social, economic, political);
- manner of content treatment (amateur, professional, unidentified);
- nature (scholarly, popular and scholarly, popular, unidentified);
- dimension (zero-, one-, two-, three-, four-dimensional);

- size (microgeocomposition, pocket size, macrogeocomposition);
- colour (one-colour, multicolour, mixed);
- degree of complexity (uniform, non-uniform);
- number of elements (one, a few, multi-element, unidentified);
- system of elements (symmetrical, asymmetrical, in-line, central, unidentified);
- repeatability of elements (one time, a few times, many times);
- origin of data source (monogenetic, polygenetic, mixed);
- status of up-to-dateness (historical, current, forecast, unidentified);

The above-mentioned artefacts and geofacts taken into account, from the family of geocomposition considered here, some doubts and questions, like the following ones, may occur:

- is it allowed to examine a set of geocompositions and subject it to an attempt of classification if it is known to be an inconvertible set i.e. an infinite one?;
- is it rational to join within one classification man-made “works” and “creations” of nature?;
- is it correct to consider at the same time polygenetic and typological aspects of geocomposition within one classification of elements perceived by all senses?;
- aren’t the suggested problems of geocomposition too provocative and is a continuation foreseen that specifies the content which has not been completely described in this paper?

Answers to all the questions thus posed are unambiguously positive and in the most succinct form, they sound - yes, which may be justified by the hitherto and future publications, related to geocompositions. We have indicated here only a short position on the mentioned issues which shall allow to understand a little better the concept and essence of geocomposition, together with its general characteristics and classification.

As to infinite sets and types of activities related thereto, in mathematics, a set theory has been started some time ago (i.e. the theory of good set orders). According to the general assumptions of this theory, it is possible to perform operations on infinite sets as it turns out that each of them, even an inconvertible (infinite) set, may be put into order, ascribing to it a determined power or else such a feature that describes the size. It needs emphasizing that the power of sets as natural generations of a number of finite sets, also referred to in mathematics as cardinal numbers, is the bigger, the bigger are the sets themselves.

Thus, assuming directly axiomatically the achievements in the field of the theory of sets, the concept of subjecting sets of artefacts, together with the geofact sets recognised here as indefinite, to characteristics and classification, only allegedly seems to be irrational. Furthermore, if we take into ac-

count the fact that the difference between real and virtual geocompositions becomes effaced, similarly as combinations between these creations by which their number grows, the easier it shall become to accept the structural and constructive attempt to draw up a classification of geocompositions whose sources are both typology and genesis.

Drawing up a classification of artefacts and geofacts, is with no doubt, provocative but at the same time precursory, as the author is not familiar with any scholarly papers which would discuss the problems undertaken in such a wide scope. This attempt to put into order the sets of geocompositions, which also aims at the introduction of a determined classification terminology (types, varieties, categories, forms, versions etc.), signals the need to continue the works, as the interdisciplinary and multi-aspect project devoted to geocomposition, has in fact only been started.

The essence of geocomposition as an autonomic semiotic existence is contained in the need to develop information systems of multimedia (ISM), which take into account all the above-mentioned elements. The geocomposition equipped with these elements shall very soon prevail over other means of geoinformation presentation and making available.

4. Conclusion

Working out the research methods related to the geocomposition, and in particular, the indication of typical elements, creating it and their features, and also drawing up a geocomposition classification as an object of research, gives the right to put forward a thesis on a subdiscipline being born within the widely understood Geographical Information Science, or even on a new scientific discipline. This is possible; the more so, when we become aware that a multi-aspect consideration of multidimensional collections of geocompositions completely deserve it in the context of the role they play.

The implementation and dynamisation of work from the scope of geocomposition - multimedia systems, may contribute to the development of this science in which, among others, the geocomposition is manifested as an autonomous, semiotic existence. For this purpose, through the analogy to the existent geoinformative laboratories, based on wireless computer and network technologies, the interdisciplinary research teams and workshops shall be appointed to use modern geomatic projects and technologies; those that are based on traditional cartographic material included.

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